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The Reporter is published by the Massachusetts Department of Public Health, Division of Food and Drugs, Food Protection Program and the Division of Community Sanitation. For further information on these and other topics, Food Protection Program staff may be reached by calling 617-983-6712 and Division of Community Sanitation staff may be reached by calling 617-983-6762.

This publication is sent to all Boards of Health in the Commonwealth. It is requested that a copy be circulated to all board members and interested employees. Other interested individuals and agencies may request a copy by contacting the Editor.

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Letter from the Directors:

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During the fall of 1999, in preparation for Y2K, the Division of Food and Drug's Food Protection Program (FPP) and Division of Community Sanitation (DCS) staff participated in a series of development meetings and drills. To spearhead this Y2K planning, Assistant Commissioner Nancy Ridley joined the estimated 200 state emergency management team members at the Massachusetts Emergency Management Agency bunker in Framingham for New Year's Eve. In addition, all FPP and DCS emergency response plans were put into effect. Fortunately, no emergencies arose, and the holiday weekend was uneventful.

After Y2K, all attention turned to the final stages of promulgation for the revision of the Massachusetts Food Establishment Regulation: 105 CMR 590.000. At its March 28, 2000 meeting, the Public Health Council approved the revised regulation, which will go into effect on October 1, 2000.

Since the approval, FPP and U.S. Food and Drug Administration (FDA) staff, in cooperation with the Massachusetts Health Officers Association (MHOA) and Massachusetts Association of Health Boards (MAHB), has presented 12 two-day workshops on the new, revised Regulation. As of July, more than 500 local board of health and food industry personnel have completed the training. Additional workshops are scheduled, and will continue throughout the Fall.

Selected training materials from the workshops are included in this edition of THE REPORTER. (See Page 30.)

From April 11-13, the Northeast Foodservice and Lodging Exposition and Conference was held in Boston. The local sponsor of the event is the Massachusetts Restaurant Association (MRA) which is a member of the Massachusetts Partnership for Food Safety Education. As a member of the Partnership, the MRA provided exhibition space and the FPP coordinated the display. This was the first time the Partnership participated at the Expo. At the Expo, the Partnership answered questions and distributed a wide va-

riety of food safety materials targeted to food service employees. Expo participants were especially interested in materials that were available in Spanish, Portuguese, Chinese, Haitian Creole, Russian, and Vietnamese. FDA, University of Massachusetts Extension, Massachusetts Executive Office of Elder Affairs, Massachusetts Division of Epidemiology, as well as the FPP staffed the booth. More than 10,000 attended the three-day Expo.

The Division of Community Sanitation continues to closely monitor two pieces of legislation. The first is the Beach Bill, which, if passed, should provide funding resources to local Boards of Health for additional costs to implement the program. The second is the Body Art Bill, which will require tattooing/piercing establishments to be licensed. If the Body Art Bill becomes law, its provisions will be quickly implemented. The Division is especially thankful to all the effort which local health boards have made toward this effort.

In 1999, an advisory committee on bathing beach quality (105 CMR 445.000, *Minimum Standards for Bathing Beaches*) reviewed the regulations, which prompted the DCS together with the Massachusetts Department of Environmental Protection to institute emergency regulations establishing indicator organisms. These regulations are in effect for the 2000 bathing season. Single-indicator organisms will be established in Fall 2000.

Recreational camp inspections are continuing throughout the camp season. Three additional staff inspectors were hired for the season to assist in the inspection of recreational camps.

In early summer, Division of Community Sanitation Assistant Director Jana Ferguson assumed the position of Health Director in Hopkington. In the FPP, Dr. Luisa Siniscalchi joined the staff as a Senior Food and Drug Inspector, and Huynh Pham was welcomed as a Senior Food and Drug Inspector in the Dairy Plant Inspection Unit. In addition, Meghan Nordt joined the FPP as a bacteriologist, and Michael Wall transferred from the Food Processing, Distribution and Salvage Unit to the Division's Drug Control Program. ❖



Achievements in Public Health, 1900-1999: Safer and Healthier Foods

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<http://www.cdc.gov/epo/mmwr/preview/mmwrhtml/mm4840a1.htm>

Accessed: November 30, 1999

During the early 20th century, contaminated food, milk, and water caused many food-borne infections, including typhoid fever, tuberculosis, botulism, and scarlet fever. In 1906, Upton Sinclair described in his novel *The Jungle* the unwholesome working environment in the Chicago meat-packing industry and the unsanitary conditions under which food was produced. Public awareness dramatically increased and led to the passage of the Pure Food and Drug Act (1). Once the sources and characteristics of foodborne diseases were identified--long before vaccines or antibiotics--they could be controlled by handwashing, sanitation, refrigeration, pasteurization, and pesticide application. Healthier animal care, feeding, and processing also improved food supply safety. In 1900, the incidence of typhoid fever was approximately 100 per 100,000 population; by 1920, it had decreased to 33.8, and by 1950, to 1.7 (Figure 1). During the 1940s, studies of autopsied muscle samples showed that 16% of persons in the United States had trichinellosis; 300-400 cases were diagnosed every year, and 10-20 deaths occurred (2). Since then, the rate of infection has declined markedly; from 1991 through 1996, three deaths and an average of 38 cases per year were reported (3).

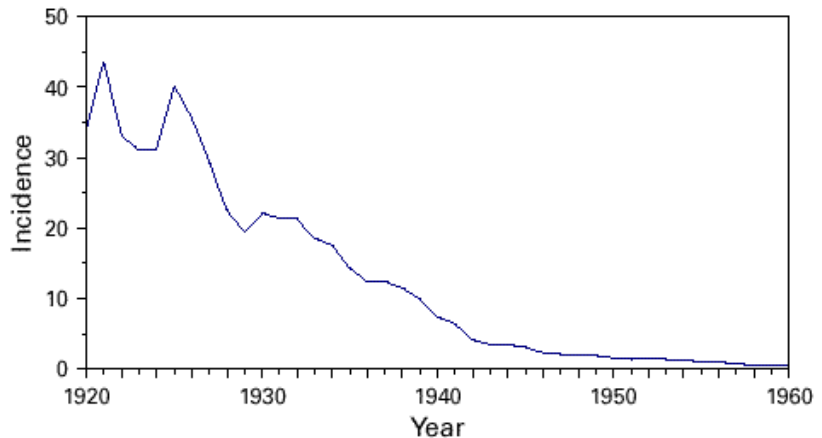
Nutritional sciences also were in their infancy at the start of the century. Unknown was the concept that minerals and vitamins were necessary to prevent diseases caused by dietary deficiencies. Recurring nutritional deficiency diseases,

including rickets, scurvy, beri-beri, and pellagra were thought to be infectious diseases. By 1900, biochemists and physiologists had identified protein, fat, and carbohydrates as the basic nutrients in food. By 1916, new data had led to the discovery that food contained vitamins, and the lack of "vital amines" could cause disease. These scientific discoveries and the resulting public health policies, such as food fortification programs, led to substantial reductions in nutritional deficiency diseases during the first half of the century. The focus of nutrition programs shifted in the second half of the century from disease prevention to control of chronic conditions, such as cardiovascular disease and obesity.

Food Safety

Perishable foods contain nutrients that pathogenic microorganisms require to reproduce. Bacteria such as *Salmonella* sp., *Clostridium* sp., and *Staphylococcus* sp. can multiply quickly to sufficient numbers to cause illness. Prompt refrigeration slows bacterial growth and keeps food fresh and edible.

FIGURE 1. Incidence* of typhoid fever, by year — United States, 1920-1960



*Per 100,000 population.

At the turn of the 20th century, consumers kept food fresh by placing it on a block of ice or, in cold weather, burying it in the yard or storing it on a window sill outside. During the 1920s, refrigerators with freezer compartments became available for household use. Another process that reduced the incidence of disease was invented by Louis Pasteur--pasteurization. Although the process was applied first in wine preservation, when milk producers adopted the process, pasteurization eliminated a substantial vector of foodborne disease (see box, page 9??). In 1924, the Public Health Service created a document to assist Alabama in developing a statewide milk sanitation program. This document evolved into the Grade A Pasteurized Milk Ordinance, a voluntary agreement that established uniform sanitation standards for the interstate shipment of Grade A milk and now serves as the basis of milk safety laws in the 50 states and Puerto Rico (4).

Along with improved crop varieties, insecticides and herbicides have increased crop yields, decreased food costs, and enhanced the appearance of food. Without proper controls, however, the residues of some pesticides that remain on foods can create potential health risks (5). Before 1910, no legislation existed to ensure the safety of food and feed crops that were sprayed and dusted with pesticides. In 1910, the first pesticide legislation was designed to protect consumers from impure or improperly labeled products. During the 1950s and 1960s, pesticide regulation evolved to require maximum allowable residue levels of pesticides on foods and to deny registrations for unsafe or ineffective products. During the 1970s, acting under these strengthened laws, the newly formed Environmental Protection Agency (EPA) removed DDT and several other highly persistent pesticides from the marketplace. In 1996, the Food Quality Protection Act set a stricter safety standard and required the review of older allowable residue levels to determine whether they were safe. In 1999, federal and state laws required that pesticides

meet specific safety standards; the EPA reviews and registers each product before it can be used and sets levels and restrictions on each product intended for food or feed crops.

Newly recognized foodborne pathogens have emerged in the United States since the late 1970s; contributing factors include changes in agricultural practices and food processing operations, and the globalization of the food supply (Table 1). Seemingly healthy food animals can be reservoirs of human pathogens. During the 1980s, for example, an epidemic of egg-associated *Salmonella* serotype Enteritidis infection spread to an estimated 45% of the nation's egg-laying flocks, which resulted in a large increase in egg-associated foodborne illness within the United States (6,7). *Escherichia coli* O157:H7, which can cause severe infections and death in humans, produces no signs of illness in its nonhuman hosts (8). In 1993, a severe outbreak of *E. coli* O157:H7 infections attributed to consumption of undercooked ground beef (9) resulted in 501 cases of illness, 151 hospitalizations, and three deaths, and led to a restructuring of the meat inspection process. The most common foodborne infectious agent may be the calicivirus (a Norwalk-like virus), which can pass from the unwashed hands of an infected foodhandler to the meal of a consumer. Animal husbandry and meat production improvements that have contributed to reducing pathogens in the food supply include pathogen eradication campaigns, the Hazard Analysis and Critical Control Point (HACCP) programs (10), better animal feeding regulations (11), the use of uncontaminated water in food processing (12), more effective food preservatives (13), improved antimicrobial products for sanitizing food processing equipment and facilities, and adequate surveillance of foodhandling and preparation methods (14). HACCP programs also are mandatory for the seafood industry (15).

Improved surveillance, applied research, and outbreak investigations have elucidated the

mechanisms of contamination that are leading to new control measures for foodborne pathogens. In meat-processing plants (16), the incidence of *Salmonella* and *Campylobacter* infections has decreased. However, in 1998, apparently unrelated cases of *Listeria* infections were linked when an epidemiologic investigation indicated that isolates from all cases shared the same genetic DNA fingerprint; approximately 100 cases and 22 deaths were traced to eating hot dogs and deli meats produced in a single manufacturing plant (17). In 1998, a multistate outbreak of shigellosis was traced to imported parsley (18). During 1997-1998 in the United States, outbreaks of cyclosporiasis were associated with mesclun mix lettuce, basil/basil-containing products, and Guatemalan raspberries (19). These instances highlight the need for measures that prevent food contamination closer to its point of production, particularly if the food is eaten raw or is difficult to wash (20).

Any 21st century improvement will be accelerated by new diagnostic techniques and the rapid exchange of information through use of electronic networks and the Internet. PulseNet, for example, is a network of laboratories in state health departments, CDC, and food regulatory agencies. In this network, the genetic DNA fingerprints of specific pathogens can be identified and shared electronically among laboratories, enhancing the ability to detect, investigate, and control geographically distant yet related outbreaks. Another example of technology is DPDx, a computer network that identifies parasitic pathogens. By combining PulseNet and DPDx with field epidemiologic investigations, the public health system can rapidly identify and control outbreaks. CDC, the Food and Drug Administration, the U.S. Department of Agriculture (USDA), other federal agencies, and private organizations are enhancing food safety by collaborating in education, training, research, technology, and transfer of information and by considering food safety as a whole--from farm to table.

Nutrition

The discovery of essential nutrients and their roles in disease prevention has been instrumental in almost eliminating nutritional deficiency diseases such as goiter, rickets, and pellagra in the United States. During 1922-1927, with the implementation of a statewide prevention program, the goiter rate in Michigan fell from 38.6% to 9.0 % (21). In 1921, rickets was considered the most common nutritional disease of children, affecting approximately 75% of infants in New York City (22). In the 1940s, the fortification of milk with vitamin D was a critical step in rickets control.

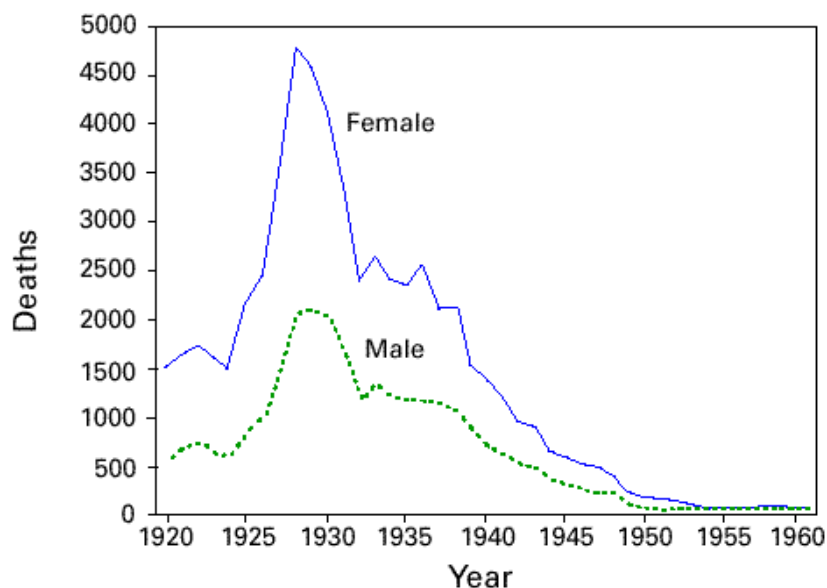
Because of food restrictions and shortages during the first world war, scientific discoveries in nutrition were translated quickly into public health policy; in 1917, USDA issued the first dietary recommendations based on five food groups; in 1924, iodine was added to salt to prevent goiter. The 1921-1929 Maternal and Infancy Act enabled state health departments to employ nutritionists, and during the 1930s, the federal government developed food relief and food commodity distribution programs, including school feeding and nutrition education programs, and national food consumption surveys.

Pellagra is a good example of the translation of scientific understanding to public health action to prevent nutritional deficiency. Pellagra, a classic dietary deficiency disease caused by insufficient niacin, was noted in the South after the Civil War. Then considered infectious, it was known as the disease of the four Ds: diarrhea, dermatitis, dementia, and death. The first outbreak was reported in 1907. In 1909, more than 1000 cases were estimated based on reports from 13 states. One year later, approximately 3000 cases were suspected nationwide based on estimates from 30 states and the District of Columbia. By the end of 1911, pellagra had been reported in all but nine states, and prevalence estimates had increased nearly ninefold (23). During 1906-1940, approxi-

mately 3 million cases and approximately 100,000 deaths were attributed to pellagra (24). From 1914 until his death in 1929, Joseph Goldberger, a Public Health Service physician, conducted groundbreaking studies that demonstrated that pellagra was not infectious but was associated with poverty and poor diet. Despite compelling evidence, his hypothesis

National Nutrition Conference for Defense, which led to the first recommended dietary allowances of nutrients, and resulted in issuance of War Order Number One, a program to enrich wheat flour with vitamins and iron. In 1998, the most recent food fortification program was initiated; folic acid, a water-soluble vitamin, was added to cereal and grain products to prevent neural tube defects.

FIGURE 2. Number of reported pellagra deaths, by sex of decedent and year — United States, 1920–1960



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remained controversial and unconfirmed until 1937. The near elimination of pellagra by the end of the 1940s (Figure 2) has been attributed to improved diet and health associated with economic recovery during the 1940s and to the enrichment of flour with niacin. Today, most physicians in the United States have never seen pellagra although outbreaks continue to occur, particularly among refugees and during emergencies in developing countries (25).

The growth of publicly funded nutrition programs was accelerated during the early 1940s because of reports that 25% of draftees showed evidence of past or present malnutrition; a frequent cause of rejection from military service was tooth decay or loss. In 1941, President Franklin D. Roosevelt convened the

programs have sought strategies to improve diets. By the 1970s, food and nutrition labeling and other consumer information programs stimulated the development of products low in fat, saturated fat, and cholesterol. Since then, persons in the United States have significantly decreased their dietary intakes of total fat from approximately 40% of total calorie intake in 1977-1978 to 33% in 1994-1996, approaching the recommended 30% (26); saturated fat intake and serum cholesterol levels also have decreased (27). Prevention efforts, including changes in diet (28) and lifestyle and early detection and improved treatment, have contributed to impressive declines in mortality from heart disease and stroke (29).

Populations with diets rich in fruits and vege-

While the first half of the century was devoted to preventing and controlling nutritional deficiency disease, the focus of the second half has been on preventing chronic disease with initiation of the Framingham Heart Study in 1949. This landmark study identified the contribution of diet and sedentary lifestyles to the development of cardiovascular disease, and the effect of elevated serum cholesterol on the risk for coronary heart disease. With increased awareness, public health nutrition

tables have a substantially lower risk for many types of cancer. In 1991, the National Cancer Institute and the Produce for Better Health Foundation launched a program to encourage eating at least five servings of fruits and vegetables daily. Although public awareness of the "5 A Day" message has increased, only approximately 36% of persons in the United States aged greater than or equal to 2 years achieved the daily goal of five or more servings of fruits and vegetables (28). A diet rich in fruits and vegetables that provide vitamins, antioxidants (including carotenoids), other phytochemicals, and fiber is associated with additional health benefits, including decreased risk for cardiovascular disease.

The most urgent challenge to nutritional health during the 21st century will be obesity. In the United States, with an abundant, inexpensive food supply and a largely sedentary population, overnutrition has become an important contributor to morbidity and mortality in adults. As early as 1902, USDA's W.O. Atwater linked dietary intake to health, noting that "the evils of overeating may not be felt at once, but sooner or later they are sure to appear--perhaps in an excessive amount of fatty tissue, perhaps in general debility, perhaps in actual disease" (30). In U.S. adults, overweight (body mass index [BMI] of greater than or equal to 25 kg/m²) and obesity (BMI greater than or equal to 30 kg/m²) have increased markedly, especially since the 1970s. In the third National Health and Nutrition Examination Survey (NHANES III, 1988-1994), the crude prevalence of overweight for adults aged greater than or equal to 20 years was 54.9%. From 1976-1980 (NHANES II) to 1988-1994 (NHANES III), the prevalence of obesity increased from 14.5% to 22.5% (31).

Overweight and obesity increase risk for and complications of hypertension, hyperlipidemia, diabetes, coronary heart disease, osteoarthritis, and other chronic disorders; total costs attributable to obesity are an estimated \$100 billion annually (32). Obesity also is a growing problem in developing countries

where it is associated with substantial morbidity and where malnutrition, particularly deficiencies of iron, iodine, and vitamin A, affects approximately 2 billion people. Increasing physical activity in the U.S. population is an important step (33), but effective prevention and control of overweight and obesity will require concerted public health action.

As the U.S. population ages, attention to both nutrition and food safety will become increasingly important. Challenges will include maintaining and improving nutritional status, because nutrient needs change with aging, and assuring food quality and safety, which is important to an older, more vulnerable population. Continuing challenges for public health action include reducing iron deficiency, especially in infants, young children, and women of childbearing age; improving initiation and duration of breastfeeding; improving folate status for women of childbearing age; and applying emerging knowledge about nutrition on dietary patterns and behavior that promote health and reduce risk for chronic disease. Behavioral research indicates that successful nutrition promotion activities focus on specific behaviors, have a strong consumer orientation, segment and target consumers, use multiple reinforcing channels, and continually refine the messages (34). These techniques form a paradigm to achieve public health goals and to communicate and motivate consumers to change their behavior.

Reported by: Environmental Protection Agency. United States Department of Agriculture. Center for Food Safety and Applied Nutrition, Food and Drug Administration. Div of Nutrition Research Coordination, National Institutes of Health. National Center for Health Statistics; National Center for Environmental Health; National Center for Infectious Diseases; National Center for Chronic Disease Prevention and Health Promotion, CDC. ❖

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Milton J. Rosenau, M.D.

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<http://www.cdc.gov/eppo/mmwr/preview/mmwrhtml/mm4840b1.htm>



Few public health issues are more public than food safety, which can involve health officials, farmers, manufacturers, and consumers. Milton J. Rosenau played a crucial role in the long, contentious campaign to make milk supplies pure and safe in the United States. As researcher, health official, and educator, Rosenau put medical science to work in the service of preventive medicine and public health.

Rosenau was born in Philadelphia on January 1, 1869, and received his medical degree from the University of Pennsylvania in 1889. In 1890, he joined the United States Marine Hospital Service (MHS). He served as quarantine officer in San Francisco from 1895-1898 and in Cuba in 1898. During 1899-1909, he directed the MHS Hygienic Laboratory, transforming a one-person operation into a bustling institution with divisions in bacteriology, chemistry, pathology, pharmacology, zoology, and biology. Rosenau conducted his most important medical research during his 10 years at the Hygienic Laboratory, publishing many articles and books, including *The Milk Question* (1912) and *Preventive Medicine and Hygiene* (1913), which quickly became the most influential textbook on the subject.

From early in his career, campaigns to reduce milkborne diseases occupied Rosenau's attention. As he stated in his textbook, "Next to water purification, pasteurization is the most important single preventive measure in the field of sanitation." A Public Health Service study in 1909 reported that 500 outbreaks of milkborne diseases had occurred during 1880-1907. By 1900, increasing numbers of children drank pasteurized milk, but raw milk remained the norm partly because the high-temperature process then in use imparted a "cooked milk" taste. In 1906, Rosenau established that low temperature, slow pasteurization (140°F [60°C] for 20 minutes) killed pathogens without spoiling the taste, thus eliminating a key obstacle to public acceptance of pasteurized milk. However, securing a safe milk supply nationwide took another generation. By 1936, pasteurized, certified milk was the standard in most large cities, although over half of all milk in the United States was still consumed raw.

In 1913, Rosenau became a Harvard University Medical School professor and a co-founder of the Harvard and Massachusetts Institute of Technology School for Health Officers. When Harvard established a school of public health in 1922, Rosenau directed its epidemiology program until 1935. In 1936, he moved to the University of North Carolina, Chapel Hill, to help establish its public health school (1940), where he served as dean until his death in 1946.

Rosenau was a dedicated teacher and advocate for improved training in preventive medicine, but he is better remembered for his textbook than his pioneering epidemiologic work. This is as he expected: "We find monuments erected to heroes who have won wars, but we find none commemorating anyone's preventing a war. The same is true with epidemics." ❖

Division of Food and Drugs Food Protection Program Annual Report FY99

Executive Summary

The Food Protection Program (FPP) of the Division of Food and Drugs (DFD) strives to ensure a safe and wholesome food supply in Massachusetts. It accomplishes this objective by conducting routine inspections and special investigations, and undertakes a variety of enforcement actions. Educational programs on compliance are provided to the food industry and local Boards of Health. Inspections and policies cover four areas: milk and dairy products; food processing; seafood; and local health programs and retail food safety operations. Inspectors are cross-trained to work in all areas of food sanitation regulation and enforcement.

In FY99, FPP staff was actively involved in the investigation of foodborne illnesses (FBI) in the State. Lengthy investigations were conducted in cooperation with the Department of Public Health's Working Group on Foodborne Illness Control and local Boards of Health to determine the causative agent(s) and/or inadequate food handling practices that led to the illnesses and to prevent further contamination, survival and transmission of organisms. Of the 334 reported foodborne illness cases affecting nearly 900 people, several outbreaks were noteworthy because of the causative microorganisms, methods of food preparation and handling, and medical effect on specific populations.

In the inspection areas of seafood and dairy, the FPP participates in national programs with all other states and the U.S. Food and Drug Administration (FDA) to inspect and certify companies for interstate shipments. The states adhere to nationally designed uniform standards for inspection and enforcement. Both the Seafood and Dairy programs were evaluated in FY99 by FDA and successfully met program criteria, thus allowing Massachu-

setts firms to continue to ship products in interstate commerce.

There were several voluntary closures of wholesale food processing and distribution establishments in FY99. These closures were the result of unsanitary operating conditions or defiled products held in storage for distribution. Inspectors with primary assignment to Food Processing are also actively engaged in each of the other primary field assignment areas by conducting seafood inspections, obtaining dairy and retail samples, and participating in foodborne illness investigations.

Retail Food Safety staff participated in more than 6 food safety programs for local boards of health and the retail food industry. Staff concentrated on revising the Massachusetts retail food regulations by proposing to adopt the FDA Food Code, with added focus on requiring food manager training and modifying mobile food unit provisions.

FY99 Accomplishments

Key FPP accomplishments in FY99 included:

- Participated in the investigation of 334 reported food-borne illness incidents.
- Responded to 128 general product complaints.
- Co-sponsored an FDA Plan Review training program with the Massachusetts Health Officers Association and FDA.
- Met the objectives of the FDA's Shellfish Evaluation Program.
- Implemented FDA's mandated Seafood HACCP Program for seafood dealers.
- Participated with adjoining states and the FDA to intercept illegally harvested shellfish.
- Computerized the collection schedule and laboratory analysis results of the more than 1600 milk samples gathered yearly.

- Successfully participated in the FDA certification program for Interstate Milk Shippers.
- Obtained voluntary or mandatory closure of several food manufacturing and distribution facilities operating under unsanitary conditions.
- Presented training programs for local Boards of Health and the retail food industry.
- Participated in the development of a Foodborne Illness Investigation Data Program with the Division of Immunization and Epidemiology to track demographic, epidemiological, and environmental factors in foodborne disease outbreaks.
- Participated in interviews with news media regarding food safety.
- Successfully fulfilled two Partnership Agreements with the FDA by conducting 115 inspections of food processors and collected 18 samples of Massachusetts produce for pesticide sampling.

Mission Statement

The primary objective of the Division of Food and Drugs, Food Protection Program is to ensure a safe and wholesome food supply in Massachusetts.

The Program accomplishes this objective by:

- Developing legislation, regulations, policies, guidelines and interpretations;
- Conducting routine inspections, including sampling and testing;
- Conducting special investigations;
- Participating in public/private initiatives;
- Developing participation in cooperative programs with other state, federal and local agencies;
- Offering educational programs; and
- Undertaking enforcement actions such as embargoes, administrative sanctions, license suspensions or revocations, and civil or criminal penalties.

The Food Protection Program operated with 19 Full Time Equivalent (FTE) managerial, policy and inspection staff in FY99. The inspection program operates within four units: Dairy Plant Inspection Unit, Food Processing, Shellfish and Seafood Unit and Local Health and Retail Food Safety.

Summary of Food Protection Program Initiatives

Prevention of Foodborne Illness

The Division's Food Protection Program strives to reduce the incidence of foodborne illness by improving food protection standards, providing education, raising compliance levels of food manufacturers and food establishments, and investigating foodborne illness outbreaks. It works cooperatively with local boards of health, and with the Department of Public Health's Division of Epidemiology and Immunization and the State Laboratory Institute in comprehensively investigating outbreaks. The FPP, with members of the Working Group on Foodborne Illness Control and local boards of health, investigated 334 reported incidents of foodborne illness, affecting nearly 900 people.

Several major foodborne illness outbreaks were reported in FY99. Below is a summary of these foodborne illness outbreaks:

Shigella sonnei: In August, six Massachusetts residents who ate at a luncheon party reported symptoms of diarrhea within 4 days of the meal. Three persons cultured positive for *S. sonnei*. Illness was associated with eating chicken sandwiches or eating uncooked parsley. The PFGE pattern of these cases matched cases in five other states. Epidemiological investigation impli-

cated chopped, uncooked, curly parsley as a common vehicle for these outbreaks. The traceback of the parsley led to a single farm in Mexico as the source. Subsequent studies showed that chopping parsley and holding it at room temperature led to significant growth of *S. sonnei*, while holding the product under refrigeration inhibited growth. It is recommended that parsley be chopped in smaller batches, be held under refrigeration, be held for shorter periods of time, and be washed with dilute chlorine or vinegar to reduce the risk that sporadic low-level contamination will lead to outbreaks of gastrointestinal illness.

Salmonella typhimurium: On October 23, the Division of Food and Drugs was notified by the Pittsfield BOH of an outbreak of *S. typhimurium*. Eight out of 12 cub scouts who had visited a dairy farm in Massachusetts on a field trip became ill. On the farm, they were given raw milk to drink despite the fact that the farm had already been ordered by MA Department of Food and Agriculture not to serve raw milk due to high cell counts in their milk. At least three of the children tested positive for *S. typhimurium* and this organism was also cultured from raw milk samples. Strains of *S. typhimurium* isolated from the cases, the milk, and two cows were indistinguishable by PFGE. The Department of Food and Agriculture issued a Cease and Desist Order, which called for the immediate suspension of the farm's right to distribute raw milk. The Department of Public Health issued a press release warning consumers of the dangers of drinking unpasteurized milk and of the need to wash hands after handling farm animals. The CDC assisted in this investigation.

Listeria monocytogenes: During Autumn 1998, the Center for Disease Control identified a multi-state outbreak of listeriosis by using PFGE analysis. The source of the outbreak was traced to hot dogs and possibly deli meats from a manufacturer in Michigan. Massachusetts had 5 cases with that same PFGE, however no definite food link could be established. Due to the outbreak, the company voluntarily recalled all of its potentially contaminated product. All 5 Massachusetts residents survived, however there was one miscarriage. Nationwide, there were 101 cases, 14 adult deaths and six fetal deaths.

Salmonella enteritidis: In May, 29 of approximately 70 people who attended a parent-teacher luncheon became ill about nine hours after the event. Fifteen people tested positive for *Salmonella enteritidis*. The event was a pot-luck lunch with many different sources for the food, however a lot of the ill people reported eating a manicotti entree prepared by a local restaurant. Epidemiological data implicated the manicotti as the source of illness, and *S. enteritidis* was cultured from this food. An environmental investigation of the implicated establishment revealed poor employee hygiene practices as well as a failure to monitor temperatures of the final cooked products. Eggs used in the manicotti recipe were the suspect source of the pathogen. The data was sent to the FDA for a trace-back of the eggs. The eggs were from a farm in Ohio. Subsequent environmental testing of that farm revealed the presence of *S. enteritidis*. Numerous unsanitary practices were discovered at the farm. Because of the emergence of *Salmonella enteritidis* as a pathogen associated with shell eggs, it is necessary to store eggs under refrigeration, cook all eggs until the yolk is firm, and make sure all dishes made with raw eggs are thoroughly cooked, or use pasteurized eggs instead.

Ciguatera toxin: In March, two people presented symptoms of ciguatera fish poisoning 10 hours after ingesting barracuda fish that they had purchased at a local fish market. The symptoms usually consist of tingling or numbness of the lips, tongue, and extremities. There may be some initial gastrointestinal signs such as nausea, abdominal pain, vomiting, and diarrhea, which usually resolve in 24 hours. A very common and unique symptom is reversal of cold and hot sensation. In addition, there may be weakness, uncoordination, and various types of pain. These patients ex-

hibited the initial gastrointestinal symptoms but later developed the cold-hot reversal and shooting pains down their legs. The toxin is most commonly found in large predatory reef fish. The toxin is not destroyed by cooking so the only way to prevent it is to avoid eating fish from waters where the toxin is endemic. A sample of the barracuda, which was available for testing, was sent to the FDA lab on Dauphin Island, where it tested positive for ciguatera toxin. This is a rare diagnosis in the northeast because large reef fish are not commonly eaten here.

Inter-Agency Cooperation and Committees

The Food Protection Program is actively involved in several key committees: the Food Establishment Advisory Committee, the Working Group on Foodborne Illness Control, a cooperative working group with the FDA and other New England States, and the Massachusetts Partnership on Food Safety Education, an inter-agency effort for training and education.

The Food Establishment Advisory Committee (FEAC), consisting of federal, state and local officials, and industry and academic representatives, met three times to review and advise the Program on food establishment regulations and policy. The focus for FEAC during FY99 has been the revision of the retail food regulations and the planned adoption of the FDA Food Code. FPP staff issued interpretations of state regulations based on FEAC recommendations.

The FPP is actively involved in The Working Group on Foodborne Illness Control; a tripartite association of the DFD, the Division of Epidemiology and Immunization and the State Laboratory Institute. The group works together with local boards of health to plan the investigation of all reported foodborne illness cases. The group combines expertise in epidemiology, diagnostic analysis and field investigations to plan and investigate outbreaks thoroughly. DFD focuses on environmental issues such as sanitation, hygiene, food handling and preparation, which may have contributed to an outbreak. It has successfully functioned for 17 years and is an excellent example of government agency infrastructure working together. The group meets weekly to summarize cases and evaluate strategies, as well as maintain daily contact for new cases.

During FY99, the Division's Food Protection Program, with representatives from other New England States, continued twice-a-year formal meetings to share information about current food safety issues, enforcement strategies, and work planning. The meetings continue to enhance cooperative enforcement initiatives, food problem awareness issues and consumer complaint information-sharing between the states and FDA.

The Food Protection Program has been a full partner with the University of Massachusetts Cooperative Extension Team in Massachusetts Partnership for Food Safety Education. Along with representatives from academia, industry, and other government agencies, the mission of the Partnership is to identify food safety materials and training resources for consumers as well as industry. The Partnership will continue to evolve into an alliance that will address food safety education from farm to table.

Field Operations in the Food Protection Program

The Food Protection Program is responsible for inspecting all wholesale food manufacturing, processing and distributing establishments in the Commonwealth. Food service and retail food establishments are licensed and inspected by local boards of health according to standards and regulations developed by the Program. The routine compliance and enforcement activities of the FPP are divided among four general areas of inspection: Seafood, Dairy, Food Processing, and Retail Food Safety.

Figures 1 and 2 summarize the inspection activities of the FPP in FY99. The total number of inspections conducted was 2009. Inspection activities include: inspections for new licenses, routine inspections, re-inspections, and surveillance inspections. Random inspections are scheduled to monitor licensees' compliance with food safety requirements.

Figure 1

Field Operations: Inspections by Food Category FY99

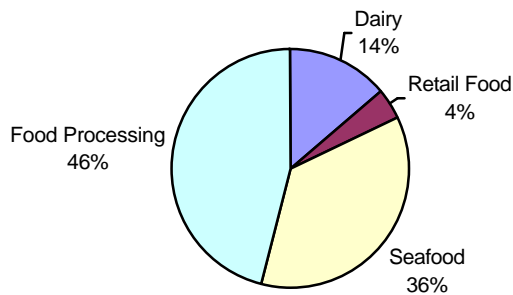


Figure 2

Field Operation: Percent of Inspections by Type of Inspection FY99

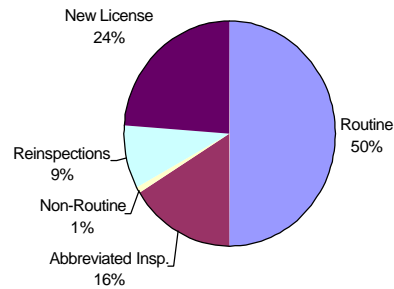


Figure 3 summarizes information on inspection activities over the last five years.

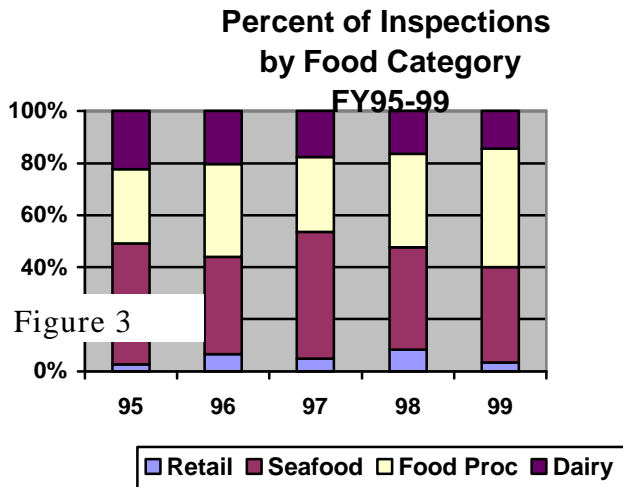


Figure 3 summarizes information on inspection activities over the last five years. In FY 1999, the Food Protection Program collected 1647 product samples. In a breakdown by food area; 1552 dairy samples, 82 food manufacturer/wholesale samples, and 43 retail and/or seafood samples were collected. Figure 4 illustrates the food products that were sampled.

It is readily evident that dairy products are the most intensely sampled food products. Milk products are tested for bacterial counts, drug residues and pasteurization adequacy.

Figure 5 portrays the number of food complaints and foodborne illness investigations for FY95-99. The types of complaints include minor product defects, food contaminated with glass, metal, and filth, and foodborne illnesses.

Another major activity of the FPP is the collection of product samples. Samples are collected for the purposes of routine monitoring for compliance with established product bacteriological standards or as part of a foodborne illness investigation.

Figure 4

Samples by Food Category FY99

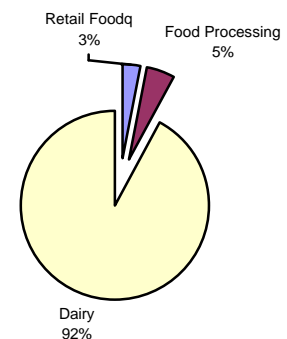
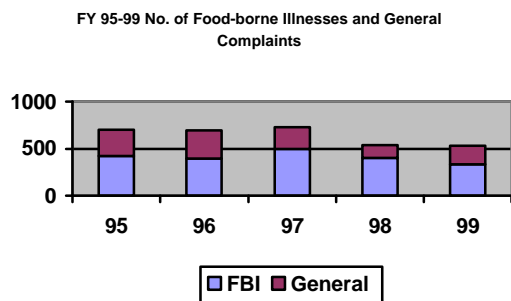


Figure 5



Highlights of the FY99 field operations are described below by inspection area.

Shellfish and Seafood Unit

The Shellfish and Seafood Unit's (SSU) primary responsibility is ensuring that firms participating in interstate commerce are certified and adhere to the requirements of the National Shellfish Sanitation Program (NSSP). The Program sets uniform national standards and enables qualified dealers to ship shellfish products in interstate commerce. The FPP, in co-

operation with the Massachusetts Department of Fisheries and Wildlife, Environmental Law Enforcement's Division of Marine Fisheries, and the FDA participate in maintaining the status of the NSSP in Massachusetts.

Massachusetts has more than 150 certified shellfish dealers who are classified according to the type of operations they conduct. Only shellfish dealers (clams, oysters, mussels, and scallops in the shell) are eligible for certification. Annually, shellstock/shippers are inspected a minimum of twice, and shucker/packers a minimum of four times. All dealers must be recertified 120 days prior to the expiration of their current certification (January 1) for the following year. Every three years, all shellfish inspectors must be standardized through successful completion of an FDA standardization process. This process involves training, education, and joint inspection evaluations.

The SSU completed 601 shellfish and seafood inspections in FY99, which included both certified and non-certified dealers, and 125 inspections for new permits issued by the Division of Marine Fisheries for retail seafood establishments, seafood trucks, and wholesale seafood dealers.

Currently, there are more than 600 wholesale shellfish/seafood dealers in Massachusetts. Many of these shellfish dealers do not participate in the NSSP. Investigating consumer complaints for shellfish/seafood related problems and illnesses are also part of the inspection program. The SSU currently has two full-time inspectors and 1/2 FTE staffing from other inspection units.

The SSU participated in numerous national and regional training and education programs focusing on the NSSP and other seafood related issues including HACCP, which is an FDA program designed to enhance the recognition of hazards in processing. This regulation became mandatory for United States seafood processors in December 1997. HACCP inspections were implemented in January 1998 as part of our FDA joint seafood dealer inspections and for the NSSP inspections. As a follow-up to HACCP, three Encore Seafood HACCP training programs were conducted in Massachusetts during FY99. Massachusetts is currently planning Standard Sanitary Operating Procedures (SSOP) training for FY00 for all seafood wholesale dealers in Massachusetts. The SSOP training were introduced and planned in FY99

The Shellfish and Seafood Unit continued to work cooperatively with other state and federal agencies on a variety of important public health issues, including sampling and testing of shellfish for Domoic acid and PSP, both serious health threats; pesticide sampling; and executing voluntary and involuntary disposal of shellfish that which were illegally harvested, tagged and/or processed. The FPP cooperated with the FDA and surrounding states in the recall of shellfish illegally shipped across state lines. The SSU responded to complaints, and served as a witnesses

for the Massachusetts Division of Environmental Law Enforcement in court cases concerned with broken embargoes of illegally processed shellfish and operating without a permit.

The SSU has recently implemented some revisions of the licensing procedures for seafood dealers with the Division of Marine Fisheries and also is currently undergoing a revision of the Massachusetts regulations, 105 CMR 533.000, in order to improve the quality and conditions that surround the seafood industry in Massachusetts.

Dairy Plant Inspection Unit

Twelve interstate milk (IMS) plants require regular inspection and certification by the Dairy Plant Inspection Unit (DPIU) to be eligible to ship products in interstate commerce. For each IMS plant, at least eight inspections and 10 sample collections are required per year under the voluntary Interstate Milk Shippers Program. This program, under the oversight of FDA's Milk Safety Branch, involves a biennial state certification of plants. The DPIU staff includes three Certified State Milk Rating Officers who perform the ratings every two years. Plants scoring 90 percent or above may ship products in interstate commerce, and these products are recognized by receiving states as being properly inspected and safe. In Massachusetts there are 13 manufacturers of single-service plastic and paper containers and closures used by the dairy industry, all of which must be listed in the IMS list and inspected twice a year by the DPIU. The remaining 40 intrastate plants which produce milk, ice cream and cheese products are inspected and sampled at least twice a year.

After in-house and FDA training, an inspection staff member was certified as a Milk Sanitation Rating Officer. All Rating officers use a standardized approach for evaluating milk plants for compliance.

The DPIU computerized the scheduling of the collection and sampling of dairy products. The computer file is shared between the DFD and the State Laboratory Institute (SLI), which performs the analysis and reports the results directly into the database file, thus providing DPIU with immediate access to all results.

The Dairy Plant Inspection Unit participated in the National Conference on Interstate Milk Shippers (NCIMS) in 1999. The conference formally approved a new initiative known as Resolution 5. This new initiative proposes a review of all NCIMS programs and policies in order to incorporate HACCP, technological innovations, scientific changes, and world market standards and requirements.

Food Processing, Distribution and Salvage Unit

The Food Protection Program is responsible for inspecting more than 2000 food processing and distribution firms. Food processors include: general food manufacturers and distributors, bottled water and carbonated beverage companies, wholesale bakeries, commissaries, warehouses, cider producers, and manufacturers of specialty food products.

During FY99, the FPP was involved in a number of major enforcement actions that were the result of unsanitary conditions uncovered during routine inspections. These actions were taken against a wide range of food processing operations. The firms were required to cease operations and implement major corrective action plans prior to resuming business.

The unit worked with the Massachusetts Department of Food and Agriculture on commercial kitchen development plans for value-added Massachusetts-grown products and on requirements

and procedures for Massachusetts' growers to expand into food processing operations. The unit also provided good manufacturing practices training to cider manufacturers. Development and monitoring activities continued on the FDA/State pilot HACCP program with a Massachusetts food processor.

The Program was also involved in investigations of deficiencies in package labeling, specifically the identification of ingredients that have the potential to cause allergic, life threatening reactions. The Program is responsible for implementing the FDA's Food Sanitation Contract, a contract to perform 115 inspections of food manufacturers for the FDA.

Local Health and Retail Food Safety Unit

The Local Health and Retail Food Safety Program staff are responsible for training, evaluating and providing technical assistance to local boards of health for the enforcement of Massachusetts retail food establishment regulations in their communities. The retail food regulations, known as 105 CMR 590.000, set the statewide standard for all retail food and food service establishments. Developed by the FPP, the regulations are enforced by local boards of health. Food Protection Program staff have focused on revising the retail food regulations to incorporate provisions of the federal model 1999 Food Code. The state regulations, last amended in 1991, will include significant changes reflecting HACCP principles, mandatory food manager certification, and safe food-handling practices based on more comprehensive science and analytical studies.

Representatives from the local boards of health continued to meet with FPP staff to revise the Mobile Food Unit/Push Cart and Temporary Food Establishment provisions in 105 CMR 590.000. These types of food operations have presented significant risk factors, which need to be addressed through enforcement and administrative provisions, currently not included in FDA's 99 Food Code. A separate group of health agents and FEAC members met to revise the inspection report form which will accompany the proposed new regulations.

Staff responded to more than 1000 telephone inquiries in FY99. These inquiries originating from local boards of health, consumers, the food industry and other agencies concerned a wide range of issues, but primarily issues about food service and retail food store standards and practices and the enforcement of the Massachusetts regulations. Staff provided daily assistance to local Board of Health personnel. In FY99, the Retail Food Safety Unit was comprised of 1.5 FTE.

Training and Education

The Food Protection Program provided training and assistance to local boards of health; sponsored workshops for agents, sanitarians, board members, and food service industry associations. The FPP presented programs on food safety to members of the Massachusetts Health Officers Association and the Massachusetts Environmental Health Association at their annual conference as well as to food service personnel at Serve Safe programs. Training topics included food manager certification, HACCP, temporary food establishments, retail food establishment inspections and general food safety measures.

With the FDA, the FPP co-sponsored an in-depth course, "Food Microbiological Control". The three-day course was attended by 75 state and local retail food safety officials. FPP staff also coordinated the state-wide down link sites for FDA teleconferences in "Cooking and Cooling Meat and Poultry," "Foodborne Illness Investigations," and the Food Safety Training and Education Alliance. FPP staff was trained in Trace-back measures and Retail Food Standardization and Certification by FDA.

Communications

The Food Protection Program published the annual edition of the *Reporter* in FY99. The publication, which includes technical and policy information on a wide variety of food subjects, is sent to the 351 local Boards of Health in the Commonwealth, as well as to a state and national mailing list comprised of medical professionals, food industry representatives, educational institutions with culinary arts programs, public officials and others interested in food safety and community sanitation issues.

Legislative/Regulatory Update

In the legislative arena, the Division of Food and Drugs followed and/or contributed testimony on food safety bills filed in the Massachusetts legislature. Key bills included the harvesting of bait clams, citizen's right-to-know of toxic substances in consumer products, disparagement of raw agricultural and aquacultural products, labeling of produce, the use of r-bst in dairy animals, and certification of organically-grown food.

Complaints

The Food Protection Program processed 195 complaints, with 106 referred to local boards of health or other state and federal agencies for investigation. Complaint-types included: contamination of food products, unsanitary conditions in food establishments, and reports of food tampering. Many complaints were investigated in cooperation with the FDA, U.S. Department of Agriculture (USDA) and local boards of health. Consumer complaints often provide valuable information to the Program on product defects and other problems that can jeopardize consumers' health and safety.

Summer Feeding Program

The Food Protection Program conducted inspections for the statewide summer camp and feeding program for under-privileged children sponsored by the Massachusetts Department of Education. One-hundred-and-three commissaries, on-site food preparation facilities, feeding sites and distribution networks were inspected and evaluated to ensure that required sanitation and hygienic practices were adhered to and that food was free of contamination and maintained under adequate temperature control. Correction schedules for violations were required to be implemented by 28 facilities whose sanitation practices were below compliance.

Enforcement

One of the primary enforcement tools available to the Food Protection Program is the embargo process, which is used when there is sufficient evidence to suspect adulteration or misbranding of foods. Forty embargoes were conducted during FY99 (and 101 additional enforcement actions). More than \$200,000 dollars estimated value of unwholesome food products were disposed of under the Program's supervision.

Recalls

The Food Protection Program cooperated with FDA, USDA, food manufacturers and distributors to assure that food and drug products being recalled by manufacturers were removed from the Massachusetts marketplace and that Massachusetts's consumers were informed of these recalls.

FY00 Initiatives

The Food Protection Program has planned several initiatives to improve the program the program's goals toward food safety during FY00. These plans include:

- The process for complaint intakes, investigations, and records will continue to be analyzed

and changed to improve overall accountability of the system, improve investigations and result in better records through the development of a computerized management system.

- The revision of regulations, particularly those pertaining to retail food and food service establishments. The FPP plans to adopt major provisions of the 1999 Federal Food Code which is becoming the standard throughout the U.S. Training sessions for local food protection programs and the food industry will be developed to explain, interpret and implement the regulations.
- Revision of seafood product regulations to incorporate FDA's Model Ordinance for Shellfish Operations and requirements for HACCP-based operations.
- Initiate a food safety working group made up of local, state and federal health departments and academia to discuss current food safety issues and to develop plans for devising solutions, increasing communication and increasing efficiency.
- Conduct statewide "Sanitation Control Procedures" workshops for regulators and the seafood industry.
- Continue to implement the mandatory seafood industry HACCP program. The inspections will be oriented to evaluating the industry-based monitoring program for critical operating procedures.
- The dairy initiative will focus on evaluating technological advances in milk processing and pasteurization equipment to insure compliance with safety standards.
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- The dairy initiative will focus on evaluating technological advances in milk processing and pasteurization equipment to insure compliance with safety standards. ❖

Tracking Foodborne Illness in Massachusetts: An Update

Erica Berl, D.V.M.

The latest data from the Centers for Disease Control and Prevention (CDC) estimate the number of foodborne illnesses in the United States to be 76,000,000 cases each year. This means that on average every one of us will experience a foodborne illness approximately every 3½ years. Fortunately, the majority of illnesses are self-limiting and leave no lasting ill effects, but the associated costs of lost time at work, lost productivity and medical bills can be substantial. The CDC arrived at this figure by including data from passive surveillance programs and active surveillance programs such as Foodnet, and then adjusting the number for the estimated degree of non-reporting and non-diagnosis. Despite the best efforts at arriving at accurate figures, there is still a large factor of estimation involved because many diseases are under-reported, many are not diagnosed, and many caused by pathogens that are still unknown.

Foodborne illness surveillance has classically been accomplished by passive reporting. Passive surveillance relies on consumers to self-report suspect illnesses and doctors to report definitive diagnoses of foodborne illness to the health departments. This is a relatively easy system to maintain, but it is prone to under-reporting.

Active surveillance can reduce the level of under-reporting by a system which physicians and laboratories are contacted on a regular basis and asked to report positive cases. Active surveillance is time consuming and requires substantial resources, but it is an effective way to improve the reporting of diagnosed cases of foodborne illness. The CDC has created Foodnet to do just that. The CDC has constructed monitoring infrastructure in selected states

and counties in the U.S. By collecting detailed information in these jurisdictions the CDC can extrapolate to other geographical areas of the country and produce statistical estimates of the level and types of foodborne illness in the entire United States.

Massachusetts is not part of the Foodnet surveillance system. Currently, the Department of Public Health relies on passive surveillance for its data and relies heavily on reporting from the local boards of health. Laboratory confirmed diagnoses are reported to the Bureau of Communicable Diseases (CD), and suspect and confirmed foodborne illnesses in which a food is implicated should be reported to the Division of Food and Drugs (DFD). CD receives reports of laboratory-confirmed foodborne diseases which they place in their database. These reports arrive from hospitals, physicians, local boards of health and from other labs. This information is considered to be reliably diagnosed, but the rate of reporting is still thought to be low. In addition, for many cases, there is not enough information provided to determine whether the illness was likely foodborne, waterborne or person-to-person. Thorough food histories are often lacking. However, if a food is mentioned as a possible source of the infection, the case data are entered into the foodborne database and counted among the total number of foodborne illnesses in the state. CD tracks the incidence of many diseases, and if there is an unusual number of reports of a certain disease or if cases are linked by PFGE (pulsed field gel electrophoresis), then the source of the illness may be identified by pooling information from the individual cases. DFD receives complaints of suspect and confirmed foodborne illnesses in Massa-

chusetts. For now, DFD has requested that local boards of health report outbreaks of suspected foodborne illness in which two or more people become ill with similar symptoms after a common exposure, and single cases which have a confirmed laboratory diagnosis. About half of all reports in the database were sent directly to DFD from the consumer, and the other half were reported to DFD by the local boards of health, which also receive most of their reports from consumers.

To assist local boards of health in collecting the required information, the Working



Group for Foodborne Illness Control developed the Foodborne Illness Complaint Worksheet. An updated version of this Worksheet was sent to the local

boards of health in January 2000. Since 1990 the Working Group has been putting the data from these reports into an electronic database. From 1990 through 1996, approximately 20 data points were recorded electronically. In 1999, the database was updated using Microsoft Access which is more flexible, user-friendly and currently stores approximately 100 data points. Data from 1997 to the present are now in the new database, and the data from 1990 through 1996 will be converted and added in the future.

Currently the database includes all the information supplied in the initial illness reports. Once the new retail food establishment regulations are in effect (October 1, 2000), and cities and towns have updated their inspection report form, environ-

mental data will be added to the database. The goal of the system is to provide an accurate assessment of the amount of and contributing causes to foodborne illness in Massachusetts. To do this well, DFD and CD rely heavily on the local boards of health to report accurately and promptly. However, in 1999 only 15 local boards of health in Massachusetts, representing 19 percent of the residents of the Commonwealth, forward reports of foodborne illness cases to the DFD.

In 1999, DFD received 345 reports of suspected foodborne illness involving 877 ill people. Four hundred and twenty-four establishments were named as possible sources of exposure. Eighty percent of the reports mentioned food service establishments including 321 reports involving restaurants, 2 caterers, 11 institutional cafeterias, and one report involving a temporary food establishment. Thirteen percent of reports suggested a supermarket as a possible source, and three percent reported a possible exposure from a retail market.

Of the 345 reports received in 1999, 177 were received directly by the state and 168 were received by the local boards of health and forwarded to the state. Boston Inspectional Services led the way among local boards of health with 122 reports forwarded to DFD. Newton and Marlborough each sent in 11 reports, and Needham, 6. Additional reports were received from 11 other cities and towns. In addition to these 15 municipalities, DFD and CD have consulted with several other cities and towns on outbreaks, which were not included in the database because no official reports were completed. It is worth repeating that in 1999 only 15 local boards of health in Massachusetts, representing 19 percent of the residents of the Commonwealth, forwarded reports of foodborne illness cases to the DFD. In 1999, the most common diagnosis reported to DFD was *Salmonella* non-Typhi, with 47 reports resulting in 99 cases. Di-

agnoses are recorded only when medical attention was sought, and the doctor made a diagnosis either by laboratory tests or by clinical symptoms. An attempt is made to exclude diagnoses provided by the cases, which do not have at least some evidence of a medical evaluation and input. There were also 22 reports of *Campylobacter* spp. resulting in 24 reported cases, and there were eight reports of *E. coli* O157:H7, involving 9 cases. DFD also received five reports of Histamine (Scombroid) poisoning, involving 16 people. One hundred and ninety-five reports had no diagnosis at the time the report was given. Twenty-two reports had the diagnosis of food poisoning with no further assessment.



In comparison, in 1999 CD received reports of 450 cases of *Campylobacter* spp., 469 cases of *Salmonella* spp. and 99 cases of *E.*

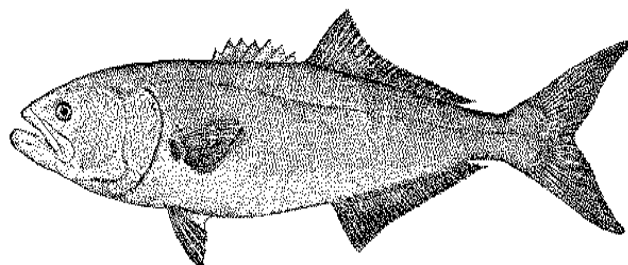
coli O157:H7. Not all of these reports were definitively connected with food; however, the CDC estimates that 80-95 percent of such infections are typically from contaminated food.

The large discrepancy in the numbers that DFD receives and CD receives may be the result of the difference in the routes of reporting. By law, these diseases **must** be reported to CD, and hospitals, physicians and boards of health comply with this to a certain degree even if many of these reports are not filed in a timely fashion and often lack a food history. Most of the reports the DFD collects are complaints generated by the consumers who are not always aware that they should report an illness themselves so that they can give the

relevant food history. Both the CD and DFD routes of reporting require that information is processed and passed in multiple steps through several parties, thus, a break in any link can decrease the level of reporting.

The major goal of DFD and the local boards of health is to reduce foodborne illness in Massachusetts. Foodborne illness surveillance is just one tool to aid in the attainment of this goal, and it is an important tool. As the database expands and data collection improves, it will be easier to track patterns of disease, determine risk factors for outbreaks, and measure the level of foodborne illness in the state. The database is still in its infancy, but it has the potential to become a valuable source of important information for anyone who is concerned about foodborne illness.

For more information see: Mead, Paul S. et al, "Food-Related Illness and Death in the United States," **Emerging Infectious Diseases**, vol. 5 no. 5, September-October 1999. Available on-line at <http://www.cdc.gov/ncidod/eid/vol5no5/meat.htm>. ❖



***Shigella sonnei* Outbreak Reinforces the Importance of Handwashing**

Allison Hackbarth, MPH
Division of Epidemiology and Immunization

Handwashing is the single most effective tool in limiting the spread of infectious diseases (including respiratory diseases and diarrheal diseases) that are transmitted from person-to-person. However, today's hectic lifestyles sometimes prevent us from incorporating proper handwashing as part of our daily routine. It is especially important to teach children how to properly wash their hands, and to incorporate this behavior into their everyday routine and to carry it into their adulthood.

The Division of Epidemiology and Immunization recently completed a state-wide distribution of a newly developed handwashing poster and a handwashing curriculum to aid schools in educational efforts and to reiterate the Division's preventive message of the importance of handwashing. This mailing was addressed to all public and private elementary schools and superintendents across Massachusetts. This initiative is the result of a large *Shigella sonnei* outbreak that occurred in the Hampden County-area during June-December 1999, and affected more than 550 persons; the majority being children less than 10 years of age. It appears that the outbreak started by one or two point sources and continued by person-to-person spread.

Shigellosis is a diarrheal disease that is very contagious and is easily transmitted person-to-person by the fecal-oral route. Infections caused by *Shigella* species are major causes of diarrhea in both developing and developed countries. Sustained person-to-person transmission accounts for most cases of *Shigella* infections, which occur most commonly in children under 10 years of age. *Shigella sonnei* community-wide outbreaks have been occurring for many years, and they can be extremely difficult to control. The organism is one of the most communicable of those that cause

bacterial diarrheas (it only takes a very small number [10-100] of bacteria to cause illness). This low infectious dose and the limited hygienic practices of young children help explain how the illness can be easily transferred from person-to-person and why the secondary-attack rate in families is so high. An added complication to control of *Shigella sonnei* outbreaks is increasing resistance to antibiotics.

As you may recall, there was a shigellosis outbreak in the same area of Massachusetts in 1991 affecting more than 1000 people. The 1999 outbreak did not reach the magnitude of the 1991 outbreak. Factors that may have prevented further spread included early intervention by local boards of health, daycare facilities and schools, which worked reinforcing the importance of handwashing.

These educational and training efforts can not stop when outbreaks are over, and must be continued in order to make individuals change their daily handwashing routines permanently. The Division of Epidemiology and Immunization urges schools to make handwashing an important and integral part of the school's daily activities.

The recent elementary school mailing – which included more than 2000 addresses – included handwashing lesson plans appropriate for kindergarten through sixth grade. Also included was a handwashing poster that can be used as a teaching aide as well as hung in bathrooms, hallways, bulletin boards or other appropriate places. The handwashing poster is also available in Spanish.

The cover letter in the mailing stated that

additional copies of the materials are available. Additional materials and can be requested by sending a letter by fax (617-983-6840) or to:

Handwashing Material
Massachusetts Department of Public Health
Division of Epidemiology and Immunization
305 South Street
Jamaica Plain, MA 02130

Due to a limited supply, schools are requested to order no more than seven of each item per school (although this number may be flexible).

In the future, the Division of Epidemiology and Immunization plans to develop handwashing materials oriented towards older children, adults and food service personnel. ❖

Foodsafe: Listeria Sampling

O. Peter Snyder, Jr., Ph.D.

Hospitality Institute of Technology and Management
St. Paul, Minnesota

Even though retail food operations are not sampled for *Listeria monocytogenes*, it is certainly present, and we need to be concerned about it. We need to know the likely sources, in addition to the fruits and vegetables and meat in the grocery store.

In the processing plants, we have found the “hot spots” for *Listeria*, where it comes up first: the drip pans on the overhead cooler coils; drips from door frames; drains, especially “wet” rooms such as the chicken room/ meat room and finished product assembly room; the bottoms of table legs that are not welded to the floor; ends of rollers, which are often not round and flat, but are indented. These are all neglected, hard-to-clean spots, making it possible for the *Listeria* to colonize.

Another spot that has turned up positive is the industrial-size pot-washing device. There is a door that is opened in order to roll the rack in, with all of the equipment to be cleaned. *Listeria* has been found at the bottom of the door frame. This is not surprising it is warm and wet, and the rollers on the bottom of the rack bring *Listeria* into the location. When the rack is rolled out of the washer, there will be *Listeria* on the rollers, which will be tracked wherever the rack goes. This is another spot that needs to be included in all sanitation standards and operating procedures/plans.

- Dr. Snyder can be contacted at osnyder@hi-tm.com. ❖

FDA Advises Consumers about Fresh Produce Safety

FDA Talk Paper

May 26, 2000

<http://vm.cfsan.fda.gov/~lrd/tpproduc.html>

Accessed: June 30, 2000

The Food and Drug Administration is advising consumers to be aware of safe handling and preparation practices for fresh fruits and vegetables. The Centers for Disease Control and Prevention has reported that the occurrence of foodborne disease increases during the summer months for all foods, including fresh produce.

Foodborne illness can cause serious and sometimes fatal infections in young children, frail or elderly people, and others with weakened immune systems. Healthy persons with foodborne illness can experience fever, diarrhea, nausea, vomiting and abdominal pain. Following are some steps that consumers can take to reduce the risk of foodborne illness from fresh produce:

- At the store, purchase produce that is not bruised or damaged. If buying fresh cut produce, be sure it is refrigerated or surrounded by ice.
- At home, chill and refrigerate foods. After purchase, put produce that needs refrigeration away promptly. (Fresh whole produce such as bananas and potatoes do not need refrigeration.) Fresh produce should be refrigerated within two hours of peeling or cutting. Left-over cut produce should be discarded if left at room temperature for more than two hours.
- Wash hands often. Hands should be washed with hot soapy water before and after handling fresh produce, or raw meat, poultry, or seafood, as well as after using the bathroom, changing diapers, or handling pets.
- Wash all fresh fruits and vegetables with cool tap water immediately before eating. Don't use soap or detergents. Scrub firm produce, such as melons and cucumbers, with a

clean produce brush. Cut away any bruised or damaged areas before eating.

- Wash surfaces often. Cutting boards, dishes, utensils, and counter tops should be washed with hot soapy water and sanitized after coming in contact with fresh produce, or raw meat, poultry, or seafood. Sanitize after use with a solution of 1 teaspoon of chlorine bleach in 1 quart of water.
- Don't cross contaminate. Use clean cutting boards and utensils when handling fresh produce. If possible, use one clean cutting board for fresh produce and a separate one for raw meat, poultry, and seafood. During food preparation, wash cutting boards, utensils or dishes that have come into contact with fresh produce, raw meat, poultry, or seafood. Do not consume ice that has come in contact with fresh produce or other raw products.
- Use a cooler with ice or use ice gel packs when transporting or storing perishable food outdoors, including cut fresh fruits and vegetables.
- Following these steps will help reduce the risk of foodborne illness from fresh produce. ❖



U.S. Food and Drug Administration (FDA) Talk Papers are prepared by the Press Office to guide FDA personnel in responding with consistency and accuracy to questions from the public on subjects of current interest. Talk Papers are subject to change as more information becomes available. ❖

Exemptions from Recreational Camp Regulations

Howard S. Wensley, M.S., C.H.O.

In preparing for this summer's recreational camp season, an issue was brought to the attention of the Department of Public Health (Department) which warrants addressing.

Some organized programs are contacting municipal recreation departments for permission to operate their summer programs through the municipal recreation departments and on municipal property. Other municipal recreation departments either seek out summer programs to operate in their communities or they operate the programs themselves. The programs and the municipal recreation departments often consider these varied relationships described above to constitute "sponsorship," which exempts the programs, under M.G.L. c. 111, § 127A, from the requirement to be licensed as a recreational camp for children by the local board of health.

Pursuant to M.G.L. c. 111, § 127A, "single purpose classes, workshops, clinics or programs sponsored by municipal recreation departments.... shall not be deemed to be recreational camps for children." While "sponsorship" is not defined in the statute, the exemption appears to be broad, encompassing all single purpose classes, workshops, clinics or programs (hereinafter "programs") operated by or in conjunction with a municipal recreation department

The Department believes that for the health, safety, and protection of children in the Commonwealth all programs otherwise meeting the definition of recreational camp for children should meet the standards for licensure and be licensed; however, the law specifically exempts certain programs sponsored by municipal recreation departments from this requirement. Municipal recreation departments may, and some do, decide to license their summer programs as camps, despite this exemption. There is nothing that prevents municipal recreation departments from doing so. It is also important to note, that any program, which



promotes or advertises the program as a camp or refers to the participants as campers, shall be deemed to be a camp and must be licensed as a camp, notwithstanding sponsorship by a municipal recreation department.

Although the Department cannot legally require municipal recreation departments to license such programs given this statutory exemption, the Department strongly recommends that municipal recreation departments require licensure of outside programs as well as of the programs operated by the recreation departments themselves. Licensure will ensure, among other things, that programs conduct adequate background checks on counselors, maintain appropriate counselor/camper ratios, require appropriate health forms and immunizations, provide adequate medical oversight and require specialized staff for high-risk activities.

If you have any questions, please feel free to contact Howard Wensley, Director, Division of Community Sanitation at 617-983- 6761.

A letter with a copy of this article was mailed to all Boards of Health and selected municipal recreational departments as well as distributed to state legislators on June 29, 2000.❖

The Massachusetts Department of Public Health

"Helping People Lead Healthy Lives in Healthy Communities"

www.state.ma.us/dph/

Internet Update

Greg A. Tocco, Internet Coordinator

Both the popularity and the use of the World Wide Web increase daily. The Internet presence of the Massachusetts Department of Public Health's (DPH) is no exception. With its ever-changing look, the information on DPH website is abundant. Also, the website is aesthetically pleasing and user-friendly with its DPH internal search engine. Major sites are the Food Protection Program pages and the Division of Community Sanitation pages.

The Food Protection Program (<http://www.state.ma.us/dph/fpp/fpp.htm>) averaged 868 viewers per month since April 1999. A significant element of the Food Protection Program site is always the *Advisories* page that supplies viewers with both DPH and FDA food advisories. Recently the MDPH completed a major revision of its retail food and food service establishment regulation. This new modification consists of two parts: 105 CMR 590.000/Food Code Fact Sheet: Massachusetts

Chapter X (105 CMR 590.000) of the State Sanitary Code Revised and a downloadable draft version of 105 CMR 590.000 Vending Machines and State Sanitary Code for Food Establishments.

These timely additions were valuable additions to the site that regularly posts the Interstate Certified Shellfish Shippers List along with consumer food safety tips.

However the passing of the Food Code was just the start of the timely Internet traffic for the Department's Homepage. With summer right around the corner, the Division of Community Sanitation (<http://www.state.ma.us/dph/dcs/dcs.htm>) has downloadable versions of Regulation 105 CMR 435.000: Minimum Sanitation Standards for Swimming Pools (State Sanitary Code, Chapter V) and 105 CMR 430.000 and Minimum Standards for Recreational Camps for Children (State Sanitary Code, Chapter IV). Along with a virtual plethora of information for the approaching summer camp season found on its Programs Page.

Whether it is new, informational additions and/or advisories, the Food Protection Program and the Division of Community Sanitation are an integral part of the Department of Public Health Homepage as we strive to *Helping People Lead Healthy Lives in Healthy Communities*. ❖



The New 105 CMR 590.000 and the 1999 Food Code Adoption Update

Since March 2000 and the promulgation of the new CMR 590.000, the Division of Food and Drugs Food Protection Program (FPP) in cooperation with the Massachusetts Health Officers Association (MHOA) and the U. S. Food and Drug Administration (FDA) Northeast Regional Office has been training members of boards of health. The Massachusetts Health Officers Association sponsored 12 workshops for regulatory employees on the revised Massachusetts Food Establishment Regulation 105 CMR 590.000. The Division of Food and Drugs and the FDA Northeast Regional Office conducted the workshops. By July 2000 more than 500 Regulatory authority employees will have completed the 2-day comprehensive training.

The Massachusetts Association of Health Boards, which sponsors a certification training for local boards of health, will devote a 3-hour session in their fall training to the new 590.000 requirements. The training will highlight changes in 105 CMR 590.000 and will focus primarily on administration and enforcement.

The FPP is creating an instructor's kit for boards of health to conduct a 590.000 training for industry. The instructors kit will include instructional objectives, lesson plan, and copies of overhead transparencies. The focus of the training materials is on the new provisions to 590.000. The kit is scheduled to be completed by late summer 2000. Local boards of health will be notified of the kit's availability as soon as it becomes available.

During the Spring training sessions, participants were provide with a variety of study aids and support materials to assist in the implementation of the new 590.000. Favorable response to particular materials, prompted inclusion in the following pages of:

- 105 CMR 590.00/Food Code Comparison Guide
- 590/Food Code Inspection Guide
- 99 Equipment Spec Sheet
- 99 Food Spec Sheet
- Recognized Tests for Food Manager Certification❖